

AMERICAN FARMER.

RURAL ECONOMY, INTERNAL IMPROVEMENTS, PRICES CURRENT.

*"O fortunatos nimium sua si bona norint
Agricolae."* . . . VING.

VOL. I.

BALTIMORE, FRIDAY, FEBRUARY 25, 1820.

NUM. 48.

AGRICULTURE.

AN ADDRESS DELIVERED BEFORE THE
Massachusetts' Agricultural Society.

At the Brighton Castle Show,
October 12th, 1819, By Hon. JOSIAH QUINCY.

The board of Trustees of the Massachusetts Society for promoting Agriculture, have requested that I should address you, this day, on topics, connected with the objects of their Institution and with the occasion. In acceding to their appointment, I have yielded to considerations of official duty. For the manner, in which the task shall be executed, I need not apologize to practical and intelligent men, such as I have now the honour to address. They know well how difficult it is to cast over a trite subject the air of novelty, or to make one, that is familiar, interesting. There is also something in the every day labours of agriculture, apparently too rough for a polished discourse, too common for one that is elevated, and too inseparable from a soil and its composts to be treated to the general ear, without danger of offence to that fastidiousness of fancy, which is mis-called refinement.

Amid the perils, which thus surround every public speaker upon such topics, where, on the one hand, the rough necessities of the farmer require plainness and particularity; and where, on the other, the over-scrupulousness of the imagination requires that important subjects of agriculture should be generalized, and intimated rather than uttered. I shall deem myself sufficiently fortunate, if it shall be my lot to escape, without failing in fidelity to the interest of the country, and yet without violating the dainty ear of city sensibility.

Our purpose, then, this day is to seek what is true and what is useful in relation to the interests of our agriculture.

In executing this purpose, I shall address myself chiefly to that great body of our countrymen, who are emphatically called—farmers. By which, I mean, the great body of Massachusetts yeomanry; men, who stand upon the soil and are identified with it; for there rest their own hopes, and there the hopes of their children. Men, who have, for the most part, great farms, and small pecuniary resources; men, who are esteemed more for their land, than for their money; more for their good sense than for their land; and more for their virtue than for either; men, who are the chief strength, support, and column of our political society, and who stand to the other orders of the state, in the same relation, which the shaft bears to the pillar; in respect of whom, all other arts, trades, and professions, are but ornamental work; the cornice, the frieze, and the Corinthian capital.

I am thus distinct, in declaring my sentiment concerning the importance and value of this class of men, from no purpose of temporary excitement, or of personal conciliation but because I think it just and their due, and because, being about to hint concerning errors and defects in our agriculture, I am anxious that such a course of remark should not be attributed to any want of honour, or respect, for the farming interest. On the contrary, it is only from a deep sense of the importance of an art, that a strong desire for its improvement can proceed. Whatever tends to stimulate and direct the industry of our farmers; whatever spreads prosperity over our fields; whatever carries happiness to the home, and content to the bosoms of our yeomanry, tends, more than every thing else, to lay the foundations of our republic deep and strong, and to give the assurance of immortality to our liberties.

The errors and deficiencies of our practical agricul-

ture may be retrieved, in a general survey, with sufficient accuracy to two sources; the want of scope of view among our farmers, and the want of system in their plans.

Concerning another want, of which farmers are most sensible and most generally complain, the want of cash in their pockets, I shall say nothing because it is not a want peculiar to the farmer. It is a general want, and belongs to all other classes and professions. Besides there is no encouragement to speak of this want, because it is one that increases, by its very supply. All of us must have observed that it almost ever happens, with, however, a few splendid exceptions, that the more any man has of this article, the more he always wants.

The errors and deficiencies, to which I shall allude, will not be such as require any extent of capital to rectify. All that will be requisite is a little more of that industry, of which our farmers have already so much; or that industry a little differently directed.—It is not by great and splendid particular improvements, that the interests of agriculture are best subserved, but by a general and gradual melioration.—Most is done for agriculture, when every farmer is excited to small attentions and incidental improvements. Such as proceed, for instance, from the constant application of a few plain and common principles. Such are—that, in farming, nothing should be lost, and nothing should be neglected; that every thing should be done in its proper time; every thing put in its proper place; every thing executed by its proper instrument. These attentions, when viewed in their individual effect, seem small, but they are immense in the aggregate. When they become general, taken in connexion with the dispositions which precede, and the consequences which inevitably follow such a state of improvement, they include, in fact, every thing.

Scope of view, in a general sense, has relation to the wise adaptation of means to their final ends. When applied to a farmer, it implies the adaptation of all the buildings and parts of a farm to their appropriate purposes, so that whatever is fixed and permanent in its character, may be so arranged as best to facilitate the labour of the farm, and best to subserve the comfort, convenience, and success of the proprietor.

Our ideas, upon this subject, may be best collected from inspection. If our fellow farmers please, we will, therefore, in imagination, adjourn, for a few moments, and take our stand, first at the door of the farm house. I say "at the door." Far be it from me to enter within it. Far be it from me to criticise the department of the other sex, or to suggest that any thing, peculiarly subject to their management, can be either meliorated, or amended. Nor is it necessary, for I believe it is a fact almost universally true, that where the good man of the family is extremely precise and regular, and orderly in his arrangements without doors, he never fails to be seconded, and even surpassed, by the order, the regularity, and neatness of the good woman within.

Let us cast our eyes, then, about us, from the door of the farm house. What do we see? Are the fences on the road in good condition? Is the gate whole, and on its hinges? Are the domestic animals excluded from immediate connexion with the dwelling house, or at least from the front yard? Is there a green plot adjoining, well protected from pigs and poultry, so that the excellent housewife may advantageously spread and bleach the linen and yarn of the family? Is the wood pile well located, so as not to interfere with the passenger; or is it located with especial eye to the benefit of the neighbouring surgeon? Is it covered, so that its work may be done in stormy weather?—Is the well convenient; and is it sheltered, so that the females of the family may obtain water without expo-

sure, at all times and at all seasons? Do the subsidiary arrangements indicate such contrivance and management as that nothing useful should be lost, and nothing useless offend? To this end, are there drains, determining what is liquid in filth and offal to the barn yard, or the pens? Are there receptacles for what is solid, so that bones and broken utensils may occasionally be carried away and buried? If all this be done, it is well; and it, in addition to this, a general air of order and care be observable, little more is to be desired. The first proper object of a farmer's attention, his own and his family's comfort and accommodation is attained. Every thing about him indicates that self-respect, which lies at the foundation of good husbandry, as well as of good morals. But if any of us, on our return home, should find our door barricaded by a mingled mass of chip and dirt; if the pathway to it be an inlaid pavement of bones and broken bottles, the relics of departed earthen ware, or the fragments of abandoned domestic utensils; if the deposit of the sink settle and stagnate under the windows, and it is neither determined to the barn yard, nor has any thing provided to absorb its riches, and to neutralize its effluvia; if the nettle, the thistle, the milkweed, the elder berry, the barberry bush, the Roman wormwood, the burdock, the dock and the devil's apple, contend for mastery along the fences, or flower up in every corner; if the domestic animals have fair play round the mansion; and the poultry are roosting on the window stools, the geese strutting centry at the front door, and the pig playing puppy in the entry.—the proprietor of such an abode may call himself a farmer, but practically speaking he is ignorant of the A B C of his art. For the first letters of a farmer's alphabet are, neatness, comfort, order.

As we proceed to the farm, we will stop one moment at the barn yard. We shall say nothing concerning the arrangements of the barn. They must include comfort, convenience, protection for his stock, his hay, and his fodder; or they are little or nothing.—We go thither for the purpose only of looking at what the learned call the stercorary, but which farmers know by the name of the manure heap. Will our friends from the city pardon us, if we detain them a moment at this point? Here we stop the rather, because here, more than any where else, the farmers of Massachusetts are careless and deficient; because on this more than on anything else, depends the wealth of the farmer; and because this is the best criterion of his present, and the surest pledge, of his future, success. What then is its state? How is it located? Sometimes we see the barn yard on the top of a hill, with two or three fine rocks in the centre; so that whatever is carried or left there, is sure of being chiefly exhaled by the sun, or washed away by the rain. Sometimes it is to be seen in the hollow of some valley, into which all the hills and neighbouring buildings, precipitate their waters. Of consequence all its contents are drowned, or water soaked, or what is worse, there having been no care about the bottom of the receptacle, its wealth goes off in the under strata, to enrich, possibly, the antipodes. The Chinese, for aught we know, may be the better for it, but it is lost for ever to these upper regions.

Now all this is to the last degree wasteful, absurd, and impoverishing. Too much cannot be said to expose the loss and injury, which the farmer thus sustains. Let the farmer want whatever else he pleases. But let no man call himself a farmer, who suffers himself to want a receptacle for his manure, water-tight at the bottom and covered at the top, so that below, nothing shall be lost by drainage, and above, nothing shall be carried away by evaporation. Let every far-

mer, wanting such protection for his manure, be assured that he loses, by the sun and rain, tenfold as much as will pay all his taxes, state, town, and national, every year. Let not the size of his manure heap be any objection. If it be great he loses the more, and can afford the expense the better. If it be small, this is the best way to make it become greater. Besides, what is the expense? What is wanted? An excavation, two or three feet deep, well clayed, paved, and "dishing," as it is called, of an area from six to thirty feet square, according to the quantity of manure, over head a roof made of rough boards of refuse lumber, if he pleases. The object being to shut out the action of the sun and cast off the rain, so that no more should come upon his manure heap than the farmer chooses. This he regulates by spouts at his discretion.

Time will not permit us to stay long upon the farm; we will go out upon it, only for the purpose of making a single observation, and that in relation to the fences.

It is thought to be a great virtue in a farmer to build good fences. And so it is. None can be greater, so far as relates to external fences; those which bound on the road, or a neighbour. They ought to be perfect and sufficient against every intrusion. But when the remark is applied to interior fences, it is often far otherwise. The making and keeping in repair unnecessary fences is one of the greatest drawbacks from the profitable employment of the labour of our farmers. Every year new fencing stuff must be brought, or stone walls must be built and stone walls repaired. Much of that time and capital are expended about these objects, which ought to be employed in collecting manures, in ploughing their land, or in some labour directly conducing to the prosperity of the immediate, or ensuing crop.

The adopting of a single principle, in relation to the management of their farms, would save at once one half of all their interior fences. I allude to the making the distinction between arable and pasture lands permanent, and adopting it as a principle, that no beasts should be permitted to range upon the soil destined to the plough and the scythe.

I know that this proposition will be received by many with surprise, and by some with a sneer. But consider of it farmers. Be assured that the practice of grazing your mowing lands is the falsest of all that bears the name of economy. It is impossible, in a discourse so general as this necessarily is, to give all the grounds of this position. I look at the subject now, only in relation to saving the expense of making fences and repairing them. Let any farmer of middle age take his pencil and calculate what it has cost him, and his ancestors, in the course of his and their lives, to make and maintain real fences, or stone walls upon their farms. I am mistaken if one half of the farmers do not find the expense far exceed their present conception, and if the other half do not find, that, at a fair estimate of materials, labour, and interest, the cost of these fences or walls has been more than the whole farm would now sell for under the hammer.

Now more than half of all the stone walls and rail fences in Massachusetts are interior fences dividing lands belonging to the same proprietor. These interior fences are absolutely useless, except for the purpose of enabling the proprietor to pasture his mowing land. They are worse than useless on exclusively arable land. These walls are in fact harbours for all sort of vermin; for field mice, and woodchucks and skunks and squirrels. Then, on both sides, what a rare assemblage always of elderberries and barberry bushes, and nettles, and all sorts of injurious weeds! Thus not only much land is lost, but worse than lost. There is done a positive injury. Besides, when the plough be ins to run, what then? Why, upon many farms, you cannot run a plough forty rods in a straight line, without coming, as farmers say, "plump" upon a stone wall. Then what a "hawing and jeeing!" And the good natured fellow, at the front yoke, must always take time to crack his joke, or to have "a cup of comfort," with the good natured fellow at the plough tail. And all this at the direct and positive loss of the owner of the land, or the employer?

But our lands are full of stone, what shall we do

with them? Certainly there is no absolute necessity of building them up in the shape of a stone wall. If there be, then thicken, or heighten, your external walls. But this is done already. Well, then, have you never a pondhole to fill up? Is there no useless hollow, into which they may be thrown? If nothing of this kind can be done with them, better pile them up pyramidically, and cover them with grape vines, then go to the expense of building walls, worse than useless.

Let me not be understood to intend, that good farming requires that farmers should level, or remove the walls, or fences, which they, or their ancestors, have already provided. The condition of every man's farm is in this respect, a particular fact, by which the calculations of his business should be made, and his conduct, in relation to it, governed. The only object of these remarks is to invite farmers, who are contemplating building new walls, or purchasing new materials for interior fences, to consider, whether their own and oxen's labour may not be better employed; and whether grazing the land, intended to be fenced, be in fact a compensation for the great expenditure, they are about to incur, of the only capital, they have generally at their command.

Farmers should never, one moment forget that their and their oxen's labour constitute their capital, and that they should be wasted in no object, which does not add something to the present or future years' actual product. It is not too much to say that the capital expended in rail fences and stone walls, which are useless in Massachusetts, would, if it had been applied in collecting manures and in deepening the soil, have added, at this day, a third part to the income of every farmer in the country.

Let every farmer divide his pasture ground as he pleases. Let the fence between his arable and pasture land, be as strong as an external fence. But, if possible, let all his arable ground, though it be a hundred acres, be in one lot. Then his plough runs clear, in a long furrow. His tillage is divided only by the different species of grain and vegetables, he cultivates. There are no fences; of consequence no inconvenient and worthless headlands; no apology for thistles and nettles. The scene is beautiful to the eye. The whole has the appearance of a garden; and begets in the farmer a sort of horticultural neatness.

Before passing to treat, very briefly, the remaining topic of discourse, may I be permitted to say a word on the style of our buildings? It will be worth the time, if it make only one man, about to build, consider.

The fault is not peculiar to farmers; it is true of men, in almost every rank and condition of life, that when about to build, they often exceed their means, and almost always, go beyond the real wants of their families, and the actual requisition of their other relations in life. But let not the sound, practical, good sense of the country be misled, by the false taste and false pride of the city; where wealth, fermenting by reason of the greatness of its heaps, is ever fuming away in palaces; the objects of present transitory pride; and too often, of future, long continued repentance.

Now, what do we sometimes see in the country? Why a thriving farmer, touched with this false taste, will throw up a building thirty, or forty feet square, two, or two and a half stories high, four rooms on a floor, with an immeasurable length of out-building behind. And what is the consequence of all this greatness? Why often, for years, the house will not be wholly glazed; or, if glazed, not clap-boarded; or, if clap-boarded, not finished: the destined partition is never put up; the destined front step is never put down; and the ragged clap-boards, on each side of the front door, there they stand, year in and out, staring and gaping at each other, with a look of utter despair of ever being united. And if you go into these mansions, what do you see? Why, you will often find, that while the good man of the house and his consort are snugly provided with warm, well plastered rooms, the children and all the rest of the family sleep about in unfinished chambers, subject to every sort of exposure; and "the best room," as it is called, in the original plan of the mansion, there it

stands, the lumber room of the family, for half a century; the select and eternal abode of crickets and cockroaches; and all sorts of creeping and skipping things; full of old iron and old leather; the stuffing of decayed saddles; the ragged relics of torn bed quilts; and the orts and ends of twenty generations of corn cobs.

When will man learn, that his true dignity, as well as happiness, consists in proportion? In the proportion of means to ends; of purposes to means; of conduct to the condition of life, in which a kind Providence has placed him; and to the relations of things concerning which, it has destined, he should act!

The pride of the farmer should be out, in his fields. In their beauty, in their order, in their product, he should place the gratification of his humble and honourable ambition. The farmer's great want is capital. Never should his dwelling be splendid at the expense of his farm. In this, all that is surplus, in his capital, should concentrate. Whatever is uselessly expended elsewhere, is so much lost to his family and his fortune.

I shall now recur, briefly, to another class of deficiencies, the want of system in the plans of our farmers.

System relates to time, to courses and to modes of husbandry. A full elucidation of each topic would embrace the whole circle of farming dispositions and duties. The time will not permit any thing more than a recurrence to one, or two, leading ideas. Want of system, in agriculture, leads to loss of time and increase of expense. System, has chief reference to succession of crops; to sufficiency of hands; and to selection of instruments. As to the succession of crops, called rotation, almost the only plan of our farmers is to get their lands into grass as soon as possible; and then to keep them, in grass, as long as possible. The consequence of this practice, for it deserves not the name of a system, is to lead to the disuse, or rather to the least possible use of that great source of agricultural riches—the plough. Accordingly, it has almost become a maxim, that the plough is the most expensive of all instruments; and of consequence as much as possible to be avoided. And so it is, and so it must be, as the business of our farms is managed. By keeping lands down to grass, as long as possible, that is, as long as the hay product will pay for mowing and making, the consequence is, that our lands, when we are obliged reluctantly, to put the plough into them, are bound and matted, and cross-barred, with an impervious, inextricable, infrangible web of root and sod. Hence results a grand process, called "a breaking up," with four, five, or six head of cattle, as the case may be, with three men, one at the oxhead, a second at the plough beam, and the third at the plough-handle. Is there any wonder that such a ploughing apparatus is an object of aversion?

It is impossible for any man to witness "a breaking up" of this kind, without being forcibly reminded of the reflection made by a dry Dutch commentator, on that passage in the book of kings, where it is said, that Elisha was found "ploughing with twelve yoke of oxen." "Well," said the commentator, "it is no wonder, that Elisha was glad enough to quit ploughing, for prophesying, if he could not break up with less than twelve yoke of oxen."

In fact, the plough is the natural instrument of the farmer's prosperity, and the system of every farmer ought to have reference to facilitating and increasing its use. Let a rotation be adopted, embracing two or three years successive ploughings, for deepening and pulverising crops, to be succeeded by grain and grass, for two or three years more. The plough, on its return, every five, six, or seven years, finds in such case, the land mellow, soft, unimplicated by root, and tender in sod. The consequence is, that "a breaking up" is then done with one yoke of oxen and one man. The expense is comparatively small. There is nothing to deter, and every thing to invite the farmer to increase the use of that most invaluable of all instruments. It ought to be a principle that our farming should be so systematized

that all "breaking up" should be done with one yoke of oxen and one man; who both drives and directs the plough.

Systematic agriculture also requires sufficiency of hands. Whatever scale of farming any man undertakes to fill, hands enough to do it well are essential. Although this is a plain dictate of common sense, yet the want of being guided by it in practice, is one great cause of ill success in our agriculture. Because we hear every day, that "labour runs away with all profits in farming," almost every farmer lays it down as a maxim, to do with as little labour as possible. Now this maxim almost always results in practice, in doing with less than he ought. The effect is almost every where seen in loss of time—loss of season, loss of the employ of working cattle, and loss or deterioration of crop. Now, in truth, labour, as such, never yet diminished any man's profit, on the contrary, it is the root and spring of all profit. Labour, unwisely directed and unskillfully managed, is indeed a great consumer of the farmer's prosperity. But labour wisely directed and skillfully managed, can, from the nature of things, result in nothing else than profit. What is skillful management and what is wise direction of labour, opens a field almost boundless; and not to be attempted on the present occasion. A single remark must suffice. The great secret of European success in agriculture is stated to be "much labour on, comparatively, little land." Now the whole tenor of Massachusetts husbandry, from the first settlement of the country, has been little labour, on much land. Is it wonderful then that success should be little or nothing, when conduct is in direct violation of the principle, on which success depends.

With respect to utensils too, system requires that they should be the most perfect of their kind; and always the most perfect in their state.

* Great profits in agriculture can result only from great improvements of the soil. Great improvements of the soil can result only from unremitting industry. The chief study of every farmer should be what is useful and what is useless expense in relation to his art. The discrimination between these is the master key of the farmer's prosperity. The first should be incurred with a freedom, little short of profusion. The last should be shunned as the sailor shuns the rocks, where are seen the wreck of the hopes of preceding mariners.

In this art, and almost in this art alone, "it is the liberal hand which maketh rich."

Liberality, in providing utensils, is the saving both of time and of labour. The more perfect his instruments the more profitable are they.

So also is it with his working cattle and his stock. The most perfect in their kinds are ever the most profitable.

Liberality in good barns, and warm shelters, is the source of health, strength, and comfort to animals—causes them to thrive on less food, and secures from damage all sorts of crops.

Liberality also in the provision of food for domestic animals, is the source of flesh, muscle and manure.

Liberality to the earth, in seed, culture and compost, is the source of its bounty.

Thus it is in agriculture, as in every part of creation, a wise and paternal Providence has inseparably connected our duty and our happiness.

In cultivating the earth, the condition of man's success is, his industry upon it.

In raising domestic animals, the condition of his success is, kindness and benevolence to them.

In making the productiveness of the earth de-

* I am indebted, partly for the general turn of thought, and for some of the expressions in a few of the ensuing paragraphs, to a work entitled *Arator*, by John Taylor, Esq. of Caroline county, Virginia, a work principally destined to meliorate the agriculture of the state, of which the author is a citizen—but written so far as it relates to its agricultural tendency in an admirable spirit, and abounding in reflections at once practical and philosophical.

pend upon the diligence and wisdom of the cultivator, the Universal Father has inseparably connected the fertility of his creation with the strongest intellectual inducements, and the highest moral motives.

In putting the brutal world under his dominion, he has placed the happiness of which their nature is susceptible, under the strong guarantee of man's interest.

Instead therefore of repining at his lot, let the cultivator of the ground consider his, as among the highest and happiest of all human destinies—since in relation to the earth, he is the instrument of heaven's bounty; in relation to the inferior orders of creation, the almoner of Providence.

From the Albany Argus.

Treatise on Agriculture.

SECTION XI. OF MEADOWS.

These are either natural or artificial; the former containing only plants of spontaneous growth; the latter, those selected, sown and cultivated by man. The better to keep this distinction in view, we shall speak of them separately—and

1. Of Natural Meadows.

These have been classed by botanists according to their elevation; and have thence been denominated, high, middling, and low. But as this principle fails altogether to indicate their agricultural character and properties, (1) a better one has been found in their relative moisture; whence they are denominated dry, or moist or wet. The products of these have been carefully and skillfully analysed in Germany, in Italy, in England, and in France, (2) and the result shows, that wet meadows contain the smaller number of the different species of plants, but the greater number of those which are either useless or injurious; and on the other hand, that moist meadows contain the greater number of the former, and the smaller number of the latter. The following simple table exhibits at a glance, the present state of knowledge on this important part of our subject.

Whole number of plants in wet meadows,	30; useful 4, useless or bad, 26
Do in Dry meadows, 38; do	8, do 30
Do moist meadows, 42; do	17, do 25

The agricultural labours suggested by these facts are of two kinds—the eradicating of useless or pernicious plants, and the continuance and multiplication of those which are good. The first of these objects is promoted by mowing the meadows before the seeds of noxious plants ripen, by pasturing them once in three years, by sheep, horses and cattle, in succession; by harrowing them in the spring and fall; by weeding and hoeing them; and lastly, by sufficiently draining those that are wet.

Many pernicious plants are annuals, and are killed by the first of these operations. A similar effect is produced by the second; the harrow or scarifier will best destroy mosses or other weeds, whose roots are fibrous and superficial; the hand hoe will extirpate such tap-rooted plants as resist the harrow and are refused by cattle, and draining will expel all worthless aquatics.

Of these remedies, the last may require some explanation. Meadows are wet from different causes—from obstructions, (accidental or permanent) to the course of rivers: from occasional inundations, from high and uncommon tides, from neighbouring springs issuing sometimes above and sometimes below the level of the grounds you wish to drain, and frequently from others rising up within the meadows themselves. In the first case the remedy is obvious, and consists altogether in removing the obstructions; in the second and third, embankments as in the Mississippi and Delaware will exclude the flood; and in

(1) We often find bogs on the tops of mountains, and arid sands on the banks of rivers.

(2) See Observations made by the Agricultural Society of Great Britain, and *Mémoires sur l'Agriculture du Bourbonnais*, &c. per M. Dumont de Coursat,

the fourth and fifth, the cure lies in creating a surface of lower level than that of the meadows to be drained, or in raising the water to a level above that of the meadows, and carrying it off by race ways or canals, the former of these methods is to be executed by ditching or by digging through the sub-soil into sand or gravel, whence the water will find a subterranean passage. The latter is effected by enclosing the springs within walls and permitting them to rise to the level of their own source. It is evident however, that if these be not higher than that of the meadow, the experiment will fail. (3)

The second object, (the multiplication and continuance of good plants) will be ensured by scattering in the fall or spring, or both, (after the harrow or scarifier,) the seeds of useful grasses, (4) particularly upon places rendered raw or bear by the harrow or the hoe; by covering the meadows in the fall with straw, dung, lime, or manure; and in the spring, with plaster of Paris or ashes; by folding or parking sheep or horned cattle, during the summer and while the ground is hard, on places requiring manure; by foddering on such places during the winter; and lastly, irrigation. This last and most efficient method of bettering the condition of meadows, is sometimes characterised by the duration of its means and sometimes by the mode of applying them. In the first case, it is called temporary or permanent, as the stream it employs may be the one or the other. In the second case it is denominated filtration or submersion, according to the effect produced. If for instance, the surface be only wetted by running water, it is called filtration, but if entirely covered with water, in a state of rest, it is called submersion. These different modes have some principles common to both, and some peculiar to each.—The common principles are,

1st. Such command of water as will cover the largest surface with the least labour and expense.

2d. Muddy water, (the effect of loosened soil and heavy rains) is most favourable to vegetation, because, besides giving the necessary moisture, it furnishes a considerable portion of alluvial matter.

Water, charged with sand or gravel, or containing iron or vitriol, or of a temperature very hot or very cold, is unfavourable to vegetation, and ought not to be employed, until, by standing in reservoirs, it deposits these injurious matters, in the one case and in the other, acquires the temperature of the atmosphere.

4th. Clay and calcareous soils, require less watering than others.

5th. Irrigation is of less importance in northern than in southern latitudes; and

6th. In cold climates, or in situations of much elevation, irrigation is most usefully employed in the spring and autumn: and in hot climates and sandy soils in the summer.

The principles peculiar to the two modes may be collected from the following brief detail of the labours necessary to each. In irrigating by submersion the first and great labour is to make a dam, of such strength, as shall resist the volume of water by which it may be pressed; of such height as will raise the water above the level of the ground you wish to overflow, and of such structure as will enable you to discharge the water it collects promptly and entirely. The signal for doing this, is the rising of air bubbles, from the bottom of the pond, which never takes place until a decomposition of the plants below begins. In the winter this tendency to decomposition is corrected by cold, and the submersion may of course be continued for weeks and months, and the water permitted to freeze not only without injury, but with great benefit to the plants, particularly if they have been closely pastured in the fall.

(3) See Anderson's *Essays on Agriculture*, vol. 1, page 119, &c.

(4) In selecting these grasses, care should be taken to employ those most resembling the spontaneous growth of the field, or in other words, those which flower and seed at the same time with this spontaneous growth

Filtration is a process requiring, in general, more labour and science than the other; because, besides a dam, to raise a sufficient head of water, you must have your canal of derivation, your reservoir, your cuts or ditches, and lastly your fosse of discharge—which, to be useful, must be well constructed and judiciously placed. The canal and reservoir will necessarily occupy the highest ground, and be proportioned to the quantity of water to be conducted and retained; the cuts or ditches, supplied from the reservoir, will be paralleled to each other, of nearly equal descent, but of diameters diminishing in proportion to their length, so as to give to the water the same swiftness it had when its volume was greatest. Stops or gates must be made in the cuts or ditches, in such number as may be necessary so to pond the water as to make it overflow the lower sides of the ditches, and at such points as will from the shape of the ground, diffuse it most generally. In this way, small streams, occasional showers, and dissolving snows, may be turned to great account, and with this additional advantage, that they require no reservoirs, and little if any draining, and only cuts or ditches formed with a plough or a hoe.

A third kind compounded of the two others, is sometimes seen in Europe, where the water, after being employed in irrigating the sides of hills, is brought upon flats for the purpose of inundation, or more generally from that of forming reservoirs, from which it may again be raised by machinery, such as the noria of the Moors, or the hydraulic ram of Montgolfier, &c. (5)

II. Of Artificial Meadows.

We have seen that natural meadows abound in plants, either useless or pernicious; and that it is among the principal labours of agriculture to eradicate these, and to substitute for them others of greater product or better quality. It was probably this process, that first suggested the idea of artificial meadows, or those composed only of plants of our own choosing and alternating with grain or root crops. And it cannot be doubted, but that if the grasses selected be good in themselves, adapted to the soil and carefully cultivated, we thus arrive at the highest possible degree of perfection, of which this branch of the art is susceptible; because, besides having only wholesome and nutritive forage, we double its quantity, and at the same time, put the soil in a state to give us a series of good subsequent crops.

France claims the credit of having been the first to discover the value, and introduce the practice, of this new system; and it may not be amiss to collect some of the reports of her writers, on the agricultural changes wrought by it. "If," says Yvart, "meadows be the nerve of good husbandry, it is, above all, to artificial meadows we must apply this great truth. The state of those cantons, which have adopted the new system, is now as brilliant as it was before wretched and miserable. Alsace has put on a new face since the introduction of clover, and wheat crops have been increased more than one third. The village of Sebach, under the old system, bought annually 180,000 pounds of forage, and now sells 150,000."

The canton of Varlen, which gave formerly only rye and buckwheat, (and poor crops of these,) now gives abundant crops of fine wheat. This is also owing to clover and gypsum. The same remark applies to the department of Doubs. In the department of the Seine and Oise, the four year rotation is adopted, of which clover is the basis, and more than doubles the produce for exportation. In Varrenne, the soil of which is a poor sand, the same effect is produced by sainfoin, instead of clover. In a canton of the department of Loiret, M. Sageret has

(5) Whoever may have occasion to study the two subjects (draining and irrigation) either separately or in connexion, cannot do better than to consult the Hydraulic Architecture of Bellidor, the Hydraulics of Dubaut, M. d'Ourches General Treatise on Meadows. Deluc on the embankments of Holland, and Richardson's Agriculture.

doubled his income, by the introduction and culture of lucern. It would be a mere waste of time to multiply quotations on this head. Few men of our own country, who have had their eyes open for some years past, but must have seen the wonderful effects produced by plastered clover; and if there be any who resist these evidences, or are insensible to them, they must be far beyond the reach of instruction. We hasten, therefore, to another and important part of our subject—the choice of grasses for artificial meadows. Those most recommended, by the experience of all countries, are lucern, sainfoin, and clover of the leguminous family, and timothy, oat-grass, ray-grass, and meadow fox-tail, of the gramineal. We shall say a few words of each; and, 1st, of Lucern; this plant is a native of Media, whence its Latin name Medica. It was well known and highly esteemed by the ancients, uniting in itself many valuable qualities—early fitness for use, great productiveness, and duration, (6) and juices, the most nutritious and acceptable to cattle. In the south of Europe, it still maintains this high reputation, and in our southern climates, would entirely deserve it; but of its success here, we have doubts, founded on the fact, that all attempts made to introduce it, and coming within our own observation, have failed. Two conditions are, however, indispensable to its prosperity in any climate: and these are, a rich soil, and careful cultivation. In wet, or stony, or stiff ground, it does not thrive.—Its long tap-root must plunge into the earth, without obstruction, otherwise the plant suffers and dies prematurely.

2d, Sainfoin: this grows well in Europe, as high as the degree of north latitude. A species of it is found growing spontaneously in the Pays de Calais, which shows itself earlier than the more common or Spanish species.—Its produce is less than that of lucern; but the quality of its herbage, whether green or dry, is better.—Sheep are particularly fond of it. It affects high, dry, naked, white, cretaceous soils, meliorates the condition of these, and holds them better together, than any other plant. The following extract may give both instruction and encouragement to those who would cultivate this plant: "in Calabria, the sainfoin is sown upon wheat or other stubble, which is then burnt, and the ashes made to furnish a covering for the grass seed. In the spring, without other care or culture, the field is found covered thickly with sainfoin, and converted into a fine meadow. This grass crop is cut and fed, between May and August; when the ground is ploughed for grain, the crop of which is generally very abundant. But the advantages of this husbandry do not end here; for after the grain is harvested, the earth resumes its covering of sainfoin, which, in this way, is continued forty years and more, admitting every second year a crop of fine wheat," (7.)

3d, Like sainfoin and lucern, Clover is of the leguminous family, and, though less productive than the other has one advantage that gives it a decided preference, viz: its growing well in a great variety of soils. In gravel, in loam, in alluvial and calcareous earths, it does well, and we have already seen that in poor and sandy soils it doubles the income of those who employ it—as well by increasing the quantity of forage, as by putting the ground into a state to yield many and abundant future crops of grain. Still there are soils (stiff, cold and wet) in which it does not succeed, and ought to give place to the gramineal family.

4th, Timothy: This grass, in Europe, is called herd-grass, cats tail, or phleum pratense, (the botanical name;) but as the plant is of Yankee origin, we have chosen to retain the Yankee denomination. Its reputation abroad was at one time very high, and in moist grounds deserved to be so at all times; but being very tardy in showing itself in the spring, it has in many places, fallen into disuse.

5th, Ray or Rye grass, (to the good properties of

(6) "Tante dos est ejus et eum uno setu tricenis annis duret mendica." Plin. Nat. Hist.

(7) Grimaldi on the agriculture of Calabria.

timothy) superadds that precocity, which timothy wants. "We have seen," says Gilbert, "in the canton of Basle, rye-grass five feet high, on the first day of June;" and M. de Courset assures us, that he has obtained "three cuttings from it in one year."—Sheep are found to prefer it, in the spring, to any other plant; and the shepherds of Spain have a proverb, which very energetically expresses its nutritive qualities: "Bouecado vau ventrado," a mouthful is a belly full. We particularly invite the attention of farmers having clay, or other moist or wet soils, to the cultivation of this and the two following species of grasses.

6th, Oat grass, the Avena elatior of botanists, was first cultivated in 1754, and having been committed to a good soil, the results were highly favourable. It was accordingly recommended as yielding abundance of forage, and of a good quality; and that the first cutting might take place as early as the last of March. Though new and extended experiments have, in some degree, diminished this reputation, still enough of it is left to render this grass a favourite, with every scientific agriculturist.

7th, Of the Meadow Fox tail there are four species; but we shall speak only of the Alopecurus pratensis, which, of all the grasses we have mentioned, is the tallest, the most vigorous, and the soonest fit for pasturage or the scythe.—Its hay appears to be of a better quality than that of any other of the gramineal grasses, because equally relished by cows, horses and sheep. It only however, in soils neither too moist nor too dry, that it attains the perfection of which it is susceptible.

What remains of this subject, may be referred to the general principles of tillage, and the particular preparation necessary for clover crops, both of which may be found in the preceding sections.

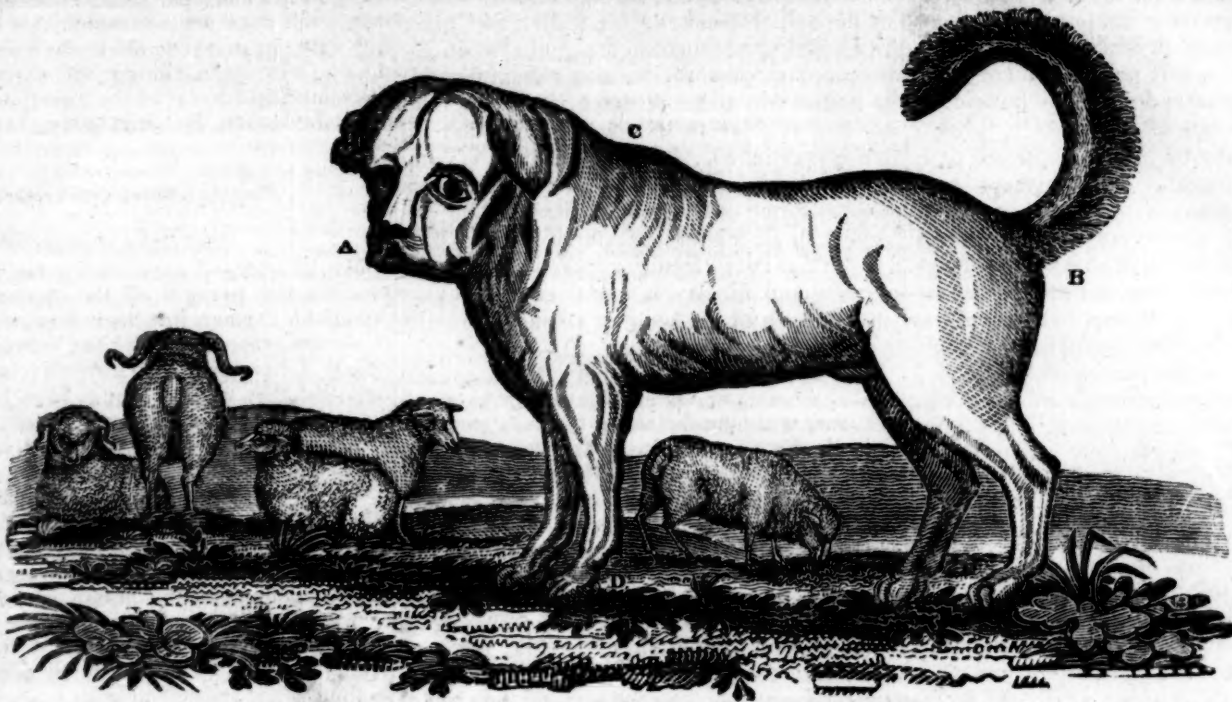
For the American Farmer.

Arlington House, near Alexandria, Feb. 1, 1820.

WOODEN SOALED SHOES.

Mr. Curtis of Arlington, in a letter to the Editor, observes,—“Wooden soaled shoes, are the very best shoes, for labourers of all colours, that I ever met with, but more especially for negroes.—They keep the feet warm and dry in ditching, and in all kinds of labour, to be performed out of doors in winter, and are a saving in expense, of fully 80 per cent. My people are all shod in this way, and themselves declare, that they never were so comfortable in their feet before, while my leather bill from \$100, has been reduced to scarce \$20.

You form the soal, after the appearance of the leather soal and heel, the wood about half, or three fourths of an inch in thickness, around the upper edge, is cut a rabbit, into which is nailed (with ordinary sized tacks) the upper leather, not a particle of thread is needed, except to close the two parts of upper leather. Every man may be his own shoemaker, and a man would put together a dozen pair a day. In slippery weather, small plates of iron are nailed around the toes and heels, and frost nails driven in them, which also protects the soal from wear. Gum, ash, or dogwood, are best for the soals, and about two sets of soals, will last the winter.—The feet are never cold, or wet, and hence will be remedied those chronic pains and evils, to which negroes are subject, from exposure to cold and wet. For any purpose but a foot race, these are the very best shoes; and I doubt whether even Sir Humphrey Davy has made a more useful discovery, in the last twenty years.



MONTAGNE; A SHEPHERD'S DOG.

Account of Montagne,

A Shepherd's Dog.

By MR. P. BAUDUY, of Delaware.

From the Memoirs of the Philadelphia Agricultural Society.

Read February, 1814.

Dear Sir:

I received your letter of the 27th inst. It was the first knowledge I had of the information you requested, respecting the dogs imported from Spain. I think that too much cannot be said, to encourage their propagation throughout the United States. Therefore I recommend the subject to your able pen.

We have heretofore laboured under very great disadvantages with regard to our flocks; I am at a loss to know, whether the destruction of sheep by dogs in this country does not exceed that by wolves in Europe. The imported dog from Spain is a very great security to our flocks.

I will not undertake to determine from what breed he springs. Buffon thinks that the shepherd dog is the root of all the canine race. The dog you inquire after is three times as large as the shepherd's dog described by Buffon; but is endowed with the same good qualities; immense strength, great mildness in the usual deportment, though ferocious towards other dogs. I can say, without exaggeration, that at least 20 dogs have been killed in my barn yard or on my farm by him; but this good quality is like all things in this world attended with an evil; for I find that Montagne has as many enemies as I have neighbours. My fellow citizens have no objection to their dogs destroying my sheep, but a very great one to see my dog kill their dogs; here, Sir, I want your help, here the welfare of the country requires your eloquence, to prove that it is un-

generous and selfish, to prefer the death of a valuable Merino, to that of an insignificant whelp or cur.

I annex to this a picture of Montagne, with his dimensions; he is a fine animal, *entirely white*. I prefer that colour in recollection of the story of old Jacob. In fact I had formerly a black dog, and many of my lambs were born black.—Since I have Montagne and his mother, I have very few black lambs.

The natural instinct of this animal is to guard your sheep against wolves and dogs; no other training is required but to keep them constantly with your flock, the moment they are from the litter, until they are grown.

P. BAUDUY.

Dimensions of Montagne, who is 18 months old.—3 feet 11 inches from A to B—2 feet 8 inches from C to D.

Shepherd's Dog.

From the London Sportsman's Cabinet.

This dog is the most timid, obedient, placid, serene, and grateful in the creation: he seems studiously conscious of the purposes for which he was formed, and is never so perceptibly gratified as when affording the most incessant proofs of his unsullied integrity.—Instinctively prone to industry he is alive to the slightest sensation of his employer, and would rather double and treble the watch line of circumspection, than be seen indulging in a state of neglectful indolence. The breed is propagated and preserved with the greatest

respect to purity in the northern parts of the kingdom of England, as well as the highlands of Scotland, where in the extensive tracts and uncultivated wilds, their services exceed description.

Constitutionally calm, patient and philosophic, the sheep dog seems totally lost to every appearance of novelty, and insensible to every attraction beyond the protection and indefatigable preservation of the flock committed to his charge. In the most sequestered and remote spots, dreary wilds and lofty mountains, almost inaccessible to man, this dog becomes an incredible and trusty substitute; for once initiated in the ground-work of his office, he soon acquires a perfect knowledge of the extent of his walk, as well as every individual of his flock, and will as regularly select his own, and disperse intruders as the most faithful and attentive shepherd in existence. This becomes more extraordinary to the contemplative mind, when it is recollected what immense flocks are seen to cover the downy hills of Hants and Wilts, as far as the eye can reach without control: and to know that by a single signal from the shepherd, this faithful, sagacious animal, replete with energy, vigilance and activity, will make his circle so as to surround a flock of hundreds, and bring them within any compass that may be required.

The sheep dog is so completely absorbed in what seems to be the sole business and employment of his life, that he does not bestow a look, or indulge a wish beyond the constant protection of the trust reposed in him, and to

execute the commands of his master; which he is always incessantly anxious to receive, and in fact is invariably looking for by every solicitous attention it is possible to conceive. Inured to all weathers, fatigue and hunger, he is the least voracious of the species, subsists upon little, and may be justly considered truly emblematic of content. Though there is the appearance of a somniferous indolence in the exterior, it is by no means a constitutional mark of habitual inability; on the contrary, the sagacity, fidelity, and comprehensive penetration of this kind of dog, is equal to any other; but there is a thoughtful or expressive gravity annexed to this particular race, as if they were absolutely conscious of their own utility in business of importance, and the value of the stock so confidently committed to their care.

Amidst the infinity of cases so constantly issuing from the press, in which proofs almost incredible are authentically adduced of the courage, sagacity, fidelity, gratitude, and self-denial of different kinds of dogs, many are to be found appertaining to this particular race; if they are not so numerous as some other sorts, it may be fairly attributed to the little proportional chance they have (from their remote and sequestered employment) of displaying those powers in an equal degree with dogs more engaged in the bustle of human society.

Dr. Anderson (in his translation from Dr. Pallas) introduces the following instance of sagacity in a shepherd's dog, which he considers truly astonishing; and it will create no surprise with those who are in the least acquainted with their perfections.

"The owner himself having been hanged some years ago for sheep stealing, the following fact, among others respecting the dog, was authenticated by evidence upon his trial. When the man intended to steal any sheep, he did not do it himself, but detached his dog to perform the business. With this view, under pretence of looking at the sheep with an intention to purchase them, he went through the flock with the dog at his feet, to whom he secretly gave a signal, so as to let him know the individuals he wanted, to the number of ten or twenty, out of a flock of some hundreds; he then went away, and at a distance of several miles sent back the dog by himself in the night time, who picked out the individual sheep that had been pointed out to him, separated them from the flock, and drove them before him by himself, till overtaking his master to whom he relinquished them.

"The shepherd's dog rather shuns than seems anxious to obtain the caresses of strangers, of whom he always appears to be shy and suspicious; it being remarkable, that when refreshing upon a journey with the flock, he seldom reposes but close to the feet

or body of his master, who well knows if he but deposits his coat or his wallet, and gives the animal the accustomed signal; when the sheep are at pasture, he may absent himself for hours, and at his return find the whole as safe and regular as if it had been under his own inspection. Although it is already observed, these dogs afford no evident external proof of quick conception, or rapid execution, (except in all matters relative to the flock, to which their every faculty appertains) yet their sagacity and fidelity is found equal to every other branch of the species, when necessarily brought into useful action.

"In the month of February 1795, as Mr. Boulstead's son, of Great Salkeld, in Cumberland, was attending the sheep of his father upon Great Salkeld's common, he had the misfortune to fall and break his leg. He was then at the distance of three miles from home, no chance of any person's coming, in so unfrequented a place, within call, and evening very fast approaching; in this dreadful dilemma, suffering extreme pain from the fracture, and laying upon the damp ground at so dreary a season of the year, his agitated spirit suggested to him the following expedient; folding one of his gloves in his pocket handkerchief, he fastened it round the neck of the dog, and rather emphatically ordered him "home." These dogs trained so, admirably to orders and signals during their attendance upon the flock, are well known to be under the most minute subjection, and to execute the commands of their masters with an alacrity scarcely to be conceived.

Perfectly convinced of some inexplicable quietude from the situation in which his master lay, he set off at a pace, which soon brought him to the house, where he scratched with great violence at the door for immediate admittance. This obtained, the parents were in the utmost alarm and consternation at his appearance, but more particularly when they had examined the handkerchief and its contents. Instantly concluding beyond a doubt, that some accident had befallen their son, they did not delay a moment going in search of him; and the dog, apparently conscious the principal part of his duty was yet to be performed, anxiously led the way and conducted the agitated parents to the spot where their son lay overwhelmed with pain, increased by the awful uncertainty of his situation. Happily this was effected just at the close of day, when being immediately removed, and the necessary assistance procured, he soon recovered and was never more pleasingly engaged, than when reciting the sagacity and gratitude of his faithful follower, who then became his constant companion."

The instances of intelligence in the shepherd's dog, are recorded in all books treating of the manners and habits of the dog tribe. One more may be mentioned from a recent publication. It is given for the purpose of stimulating the American Farmer to possess himself of one of the breed as soon as possible. Speaking of the "Curraek of Kildare," the author says. "The commonage is stocked by a prescriptive proportion, attached to the adjacent farms: every

sheep owner has a particular raddled mark; the shepherd's dogs are so trained, that if a sheep, with a strange mark, comes on his master's front, the dog will single him out and worry him off." See statistical survey of the county of Kildare, by T. J. Rawson, Dublin, 1807, p. 121.

J. M.

For the American Farmer.

Salisbury, Lancaster County.

Mr. Skinner,—I have with great satisfaction received and perused all the numbers of your American Farmer, from its commencement, and think them the most useful and interesting set of papers I have ever seen published in our country; that they will continue to be so I have little doubt, they being so well supported by gentlemen of talents and leisure, who will, I hope, find it also their advantage to promote the good of the community. This paper is a source from which much useful information will be derived, on such a variety of subjects relating to Husbandry, and the business that may be connected with it; that it will induce many to communicate their experience and practice, which must in an eminent degree, tend to the improvement and increase of the comforts which our happy country offers to the vigilant and industrious.

Should you consider this worthy a place in your useful repository, I offer you the result of my observations and experience on the destroying insect called the Hessian Fly, and my practice in agriculture since its appearance. I have not been satisfied from whence it derived its existence, but believe it is not a native of our country, as it was not known in Lancaster County, until about the year 1789 or 1790, when we first felt the effects of its ravages among our wheat and barley crops. In the American Museum, published by Mr. Mathew Carey of Philadelphia, in 1787, it was first announced as spreading in various directions, from the state of New-York, and most westwardly, at about twenty or thirty miles a year; and I well recollect, that we were very uneasy from the apprehension, that its visit among us would be extremely ruinous, as the farmers of Lancaster County, chiefly depended upon their wheat crops, as their staple at that time; in the year 1790, my crop of wheat was much of it almost destroyed, as well as my barley. I had been in the practice of sowing spring wheat and barley on my corn stalk ground, both of which were completely destroyed; the spring wheat, so much so, that I could not gather any to continue the seed that year. Many of my neighbours suffered equally, and some of them more than myself; our situation we considered alarming, not knowing that the insect would ever leave us, and grazing not being practised among us, we were the more concerned how to make our farms profitable.

Much inquiry was made for some kind of wheat that would withstand its destructive effects. Information was received, that on Long Island, they had what was called a yellow bearded wheat that the insect did not injure so much; through my friend Levi Hollingsworth, of Philadelphia, I received a barrel of that kind, which I sowed with much care the next seed time, about the 10th of September; but unfortunately, the

wheat had been somewhat heated in the cask by being so long put up, that but a moiety of it vegetated. Although it appeared very thin in the fall, I still hoped to collect seed from it for the next year, and see whether it was proof against the insect; 1791, the yellow bearded wheat as well as my other wheat, was materially injured, therefore concluded we must look for some other remedy for our misfortunes, than a change of seed. Many conjectures were advanced, as to the particular insect, from which we experienced so much damage; to satisfy myself, I took up a root of wheat in the month of March, before vegetation began, in which the eggs of the insect were the most abundant; they were of the colour of a ripe flax-seed, longer, and of a round figure, I put the wheat plant into a white flint 4 ounce vial, with some rich mould, to keep the root alive, and covered the mouth of the vial with paper, and made holes through the paper, to admit air, that the fly might have an opportunity of coming into existence; in the latter end of April, I had the satisfaction to find on the leaves of the wheat plant in the vial, flies very much resembling the common musquito, of the smallest kind; its wings appeared of a more blue colour they seemed weak, and not much inclined to move. I supposed they had come forward sooner than they would have done in the open air, owing to the increased temperature of the room, in which the vial was placed. After having discovered these strangers, I often examined my wheat field, to see if I could find any of the same appearance; I could not find any until about the beginning of May, when on carefully reviewing the ground about the roots of the wheat, I found them of the same appearance of those in the vial in considerable numbers, but not so large; they were very shy, and not easily taken, though they flew but a few feet at a time. I was then satisfied I had discovered my enemy, the next was how to defeat him. I continued to trace the insect, till they had formed themselves into societies, for the purpose of continuing their species: in the month of June, they had again deposited their eggs near the roots of the wheat plants which were then beginning to shoot out their heads; the wheat appeared sickly, or of a yellowish colour, some heads filled with grain and ripened, but at harvest, fell down in various directions, and were with much difficulty gathered. Some people cut their wheat with the grass scythe, and took it into their barns like hay without binding into sheaves.

From these observations, I concluded to sow wheat after some frosts, or cold weather, later than usual, so as to prevent the insect from depositing their eggs in the fall, for the insect would be likely to be destroyed by the cold weather, in the fly state, which might prevent the spring brood from being so numerous among the wheat plants the next season. Accordingly, the next seed time I manured as much of my ground as I could, intended to be sowed with wheat, with barn yard manure, and deferred seeding till the first week in October, there having been several frosts, with cold mornings, and evenings, my ground was all ploughed up as if seeded, waiting for this change of weather. The wheat was then sowed about one and a half bushel to the acre of different kinds, yellow

bearded, white, and our usual yellow wheat, harrowed in with one stroke of the harrow in a place, the way the ground was last ploughed; the wheat when it came up appeared as if it had been put in with a drill machine, being handsomely in rows, which is found by experience, to be the best method to preserve the roots in the winter from freezing out in rolling land, the wheat did not look so well, when the winter came on as usual, but there were roots enough, the plants stood the winter well, and at harvest I had the satisfaction to find that there was no injury done on the manured ground, to any of the kinds of wheat, by the fly; on the ground which was not manured; some little appearance of damage from the insect, was observable, but of no importance.

Supposing I had discovered the mode of being able to defeat in some measure, the ravages of the destroyer. I commenced a different course of practice: divided my fields into fifteen acre lots, as near as possible, they being before this from 50 to 60 acres each, also liming those lots with from 40 to 60 bushels of lime to each acre, limestone being plenty on my farm; commenced also a rotation of crops, Indian corn, the first year; the following spring, ploughed the stalk ground, in March if possible, and sowed spring barley with barn yard manure put over it, harrowed in; after the barley, I gave two ploughings and harrowed in rows as before stated; the next year ploughed down the wheat stubble, and at one ploughing sowed rye in the beginning of September. In the spring following, sowed about one gallon of clover seed to each acre, after which sowed on the rye, one bushel and a half of plaster of Paris to each acre; also commenced raising sheep and grazing cattle—the consequence has been, that I have not missed a crop of any kind of grain, since I adopted this course, and the Hessian fly, instead of being a curse, has had the contrary effect, my land is now in as productive a state as I could desire, and I can make on any field, which is not in grain or cultivation, from one and a half to two tons of good dry hay from each acre, and my land is still increasing in fertility.

It is proper to state, my farm is limestone land, a heavy yellow clay, alternating with sandy loam in some places. I have been more prolix than I could have desired, but you will I hope excuse my particular narrative of circumstances, as it may tend, perhaps to suggest a better mode of practice, and a careful examination of the various destructive insects which deprive us of many of our most desirable comforts.

A LANCASTER COUNTY FARMER.

THE FARMER.

BALTIMORE, FRIDAY, FEBRUARY 25, 1819.

This paper contains the eleventh, and we believe the last number of a series of essays, headed "Treatise on Agriculture." They do great credit to the taste of the writer, and prove him to be a man of science and a highly polished scholar—Report ascribes them to the pen of General Armstrong, whether correctly or not we are not advised; but most assuredly any man

should be proud to acknowledge himself the father of such offspring.

By accident, some observations on the *Management of Fruit Trees*, have been omitted, which in reference to the season of the year, ought to have appeared in this number; they may be expected in the next.

Mr. Quincy's Address to the Agricultural Society of Massachusetts, will be read with much interest, unless it be, that Farmers like many other people, do not relish advice, which exposes their defects, and exhorts them to a change of conduct and habits. So lively and faithful is the representation, that one might well imagine his picture of the farm house and barn yard, was sketched on his way to Congress, through the state of Maryland. We had supposed that our eastern "friends of order," had arranged things better at home—we would respectfully propose that this part of his address be read at the next meeting of our Maryland Agricultural Societies.

Verb: Sap: Sat: in plain English and without any contraction—a word to the wise is enough—and why should not a word to the honest be sufficient?—All who are in arrears, as some have by accident been allowed to be, are requested to remit the amount due for the first vol. of the Farmer, by the first mail, at the cost and risk of the Editor.

To Mr. Southwick, Editor of that valuable and interesting journal "*The Plough Boy*," we are indebted for the engraving of the Shepherd's dog.

Although the demand for Merino wool has much declined under a great change in the circumstances of the country—we must still consider the stock we have acquired as of immense importance. It will constitute a capital which may be rapidly multiplied and accumulated when a change in the internal policy or foreign relations of the United States may render it desirable. In the mean time it is well to record such observations and reflections, as may serve hereafter to direct the farmer in the improvement and preservation of his flocks, and to this end it would surely be politick to import and propagate the breed of Shepherd's dogs—the character and qualities of which are so well described in the article we have copied.

FOR THE AMERICAN FARMER.

Mr. Skinner—I perceived in a late number of the American Farmer, the following observation subjoined to a communication made by A Subscriber—"I should be gratified if some of your correspondents would inform me, the cost of oyster-shells per bushel—the difference in bulk before and after burning—the quantity of fuel necessary, and the most economical method of burning them, as well as the best mode of applying the lime to the land."

With regard to the first subject of inquiry, it is probable your correspondent can obtain more satisfactory information from persons residing near him. On James River, the price of shells is usually one dollar per hoghead; eighteen bushels being called a hoghead. In the District

of Columbia they sell for three cents per bushel. In reference to the other points on which he solicits information, I will cheerfully communicate the result of my practice and observation, if you should deem it worthy of his notice.

By those, who prepare large quantities of lime for sale, the shells are burned in permanent kilns, constructed for the purpose, and calculated to save fuel and abridge labour. Whether it would be competent to farmers, or discreet in them to adopt a similar plan, I am unable to say, because I am unacquainted with the manner of erecting and using the kilns, or the expenses attending them.

The mode in general use is, to build a pen of logs, seven or eight feet square, with successive floors of the same materials, on each of which, shells are deposited, until the pen attains sufficient height. The fire is then communicated to the pile, and if the quantity of lime thus obtained be insufficient, another pen is made, and the same process repeated.

An improvement on this method suggested itself to me. It was apparent that a great waste of fuel was the consequence of burning a small quantity of shells at a time, besides that many were imperfectly calcined; and I concluded a less quantity of fuel might be made to produce a much greater effect, by combining several of these pens, and burning them all at once. In this way each pen would receive the benefit of the heat emanating from those adjacent to it, and many additional shells might be burned in spaces between the pens.

In pursuance of this idea, I proceeded, about the latter end of March last, to construct my pens in the following manner, and made use of straight pine logs, mauled into lengths of eight feet, generally from eight to twelve inches wide, and five or six inches thick. These had been seasoning about two months. As a foundation for the first pen, three logs were laid parallel to each other, the two outer ones about six feet apart in the clear. Across these was laid a floor of logs, placed as close to each other as possible; the ends projecting about a foot on one side. Upon this floor, and immediately over the two external bottom logs, two others were placed; and, to complete a square, two additional logs of the same thickness, but shortened to six feet, were laid down at right angles with the first. Thus was formed a receptacle for the first layer of shells, which was filled accordingly, and the top made level. On the surface of these shells and the logs which confined them, another floor was laid at right angles with the first, in order that the work might bind well. Having progressed thus far, a similar pen was made on that side of the first where the floor projected, and in such a way that the projection of the one should come in contact with the projection of the other. This pen being advanced as far as the first, two others, precisely similar, were made along side of them, but not in immediate contact; so that the four pens formed a square, with two passages intersecting each other in the centre. The interval between the two first and the two last pens was likewise floored with billets of wood: and every interspace in the floors and walls was carefully stopped in like manner. Shells were then thrown on un-

til an even surface was obtained. We now resumed the work upon the first pen, where a new place of deposit for shells was made, in the same manner as the first; and this work was continued throughout, until a new stratum was formed. In this way the work progressed by successive stages, until the structure attained the height of nine or ten feet. To prevent the walls from falling outward during any part of the process, and especially after the conflagration should commence, care was taken to draw them in gradually after the second floor was formed; so that the area of the top of the pile was less than that of the foundation; and it is necessary to observe that, in every pen, the logs composing the successive floors were laid alternately at right angles with each other. The quantity of fuel used did not exceed sixteen cords of common old field pine, without heart. Of oak, no doubt, a less quantity would have sufficed. Where pine is resorted to, especially sap pine, (and it is as good as any other material for the purpose,) the logs must be large, and in all cases they must be straight.

The shells deposited in these pens amounted to 550 bushels. As calm weather was particularly desirable for the purpose of burning them, the fire was communicated late in the evening and in 12 or 14 hours the work was completed. To guard against the effects of wind, planks and pine rails were at hand to make a shelter, with the aid of forks previously planted in the ground. From this precaution I derived great advantage. After calcination, the shells measured 407 bushels. In order to ascertain what proportion of slaked lime there would be, I took 20 bushels from the pile, and upon slacking it, found that it yielded 28 bushels of fine sifted lime, and 3 bushels of coarse stuff, answering for agricultural purposes. Thus the 550 bushels of shells yielded 569 bushels of fine slaked lime, and 61 bushels of coarse stuff easily pulverised; at an expense of sixteen cords of wood such as above described.

I will now proceed to state my mode of applying the lime to the land. Rich soil had been carted to a convenient spot; and a compost was made of this and the recently burned lime, by alternate layers of each, commencing with a layer of earth, in the proportion of three parts of earth to one of lime; the whole forming a long bulk or ridge. The lime soon began to slake, and as it bursted out occasionally, more soil was thrown on the vents, to confine it as much as possible. After the lime was thoroughly slaked, and in order that it might be incorporated uniformly with the mass of earth, several hands with hoes commenced at the two extremes of the mound, and began to cut it down; leaving it in a heap behind them. In this manner they progressed until the whole was cut down and left in two heaps. The compost was then carted out and spread upon the land.

A FARMER.

P. S. I feel great solicitude to know what degree of horse power is required to work the machine for breaking and grinding corn with the cob, invented by Rogers and De-

mund; and cannot but express a hope that a more perfect representation of it will be given.

January 25th, 1820.

If you are clearing land, or can by other means obtain brush conveniently, throw it in a pile, and over it put a quantity of shells, then set fire to the brush, add more brush and more shells alternately, until all are in the mass.

The whole mass will soon take fire and the oil in the shells will hasten the combustion. A pile of two or three thousand bushels will burn about 24 hours, when they will be in a state to crumble when trod on; they may now be carted out on the land, and ploughed in at the rate of from three to five hundred bushels to the acre. In the course of two or three years, they will be perfectly mixed with the soil; and are believed to be much more beneficial than when reduced to lime, as a large proportion of the oily parts still remain.

It is also believed, that shells reduced to a powder by means of a mill, would be still more beneficial to the sand land than those which are burnt.

Editor American Farmer.

Ploughs For Sale.

The subscriber respectfully informs his friends and the public, that he has established a manufactory of Ploughs. He has on hand, and intends keeping for sale, an assortment from a large four horse, to a small one horse plough; in all five sizes, viz:

A plough well strengthened with iron, for four horses,	\$25
Ditto without extra iron, for 4 horses,	20
" For two stout horses	16
" For two small do.	13
" For one horse,	10
" For one do for seeding tobacco, &c.	9

The three smaller sizes will come one dollar each lower, without steel: the iron work will be all wrought except the mould board, which will be cast iron.

Having found great difficulty in obtaining good ploughs when on his farm, he believed that he might be usefully employed in manufacturing them, and from his experience in mechanism, and agricultural pursuits, he is confident that he will be able to give satisfaction. His ploughs are of simple construction, they will be readily kept in order, and found on trial to work easily for man and horse.

His agricultural friends are particularly invited to call and examine for themselves, at No. 82 Pratt Street, Baltimore.

ROBERT SINCLAIR.

March 3d, 1820.

Published every Friday, by
John S. Skinner.